Guided Optics: Optical Fibers and All-fiber Components

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ERRATA

Page 9, 2nd eq. should appear as (with transverse scalar Laplacian operators ∇_t^2 after the 2nd and 3rd equal signs) $\nabla^2 = \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} + \frac{\partial^2}{\partial z^2} = \nabla_t^2 + \frac{\partial^2}{\partial z^2} = \nabla_t^2 - \beta^2$.

Page 9, the line after eq. 1.21 should read: "where the vector operator $\boldsymbol{\nabla}_t^2$".

Page 15, all $\boldsymbol{\nabla}_t^2$ in eq. 1.33 should appear as transverse scalar Laplacian operators ∇_t^2.

Page 16, all $\boldsymbol{\nabla}_t^2$ in eq. 1.34 should appear as transverse scalar Laplacian operators ∇_t^2.

Page 18, the beginnig of the 2nd paragraph should appear as: "Taken as a whole, all these solutions, except for the leaky modes which can be expressed on the basis of evanescent and radiation modes, form a *complete* basis for the decomposition of the fields".

Page 45, eq. 3.24 should appear as $\tan U = -n_{\rm cl}^2 U / n_{\rm co}^2 W$,

Page 58, section **Asymptotic behavior when $n_1 \to n_2$:** change (3.46) for (3.47) (2 times).

Page 76, table 3.5, "$\nu = 1$" and "$\nu > 1$" should appear as "if $\nu = 1$" and "if $\nu > 1$".

Pages 79, 80, and 82, tables 3.7, 3.8, and 3.9, "**Core**" refers to the 2nd column.

Page 106, section 3.3.6, 3rd line should read : "the group velocity and the intramodal or chromatic dispersion".

Pages 106 and 107, Figs. 3.31 and 3.32 refer to the section 3.3.6.

Page 122, table 4.1, $\mathrm{U_c}$ $\mathrm{U}_{\ell m}$ $\mathrm{U_\infty}$ and $\mathrm{V_{min}}$ should appear as U_c $U_{\ell m}$ U_∞ and V_{min}.

Page 125, Fig. 4.4 refers to the section 4.2.6.

Page 128, caption of fig. 4.5. Add the following sentence: "The fields of eq. 4.11 are multiplied by the factor $J_\ell(U)$."

Page 132, after "We thus have [9]," equation should appear as (with gradient operators $\boldsymbol{\nabla}_t$ in the 2nd member) $$\int_{A_\infty} \left(\overline{F}_\ell \nabla_t^2 F_\ell - F_\ell \nabla_t^2 \overline{F}_\ell\right) dA = \oint_C \left(\overline{F}_\ell \boldsymbol{\nabla}_t F_\ell - F_\ell \boldsymbol{\nabla}_t \overline{F}_\ell\right) \cdot \hat{\mathbf{n}}\ dC = 0,$$

Page 137, Fig. 4.9, the three $\mathit{\Psi}(r)$ should appear as $\Psi(r)$.

Page 140, eq. 4.47, last line should appear as: $(U_0/\varepsilon) I_\ell'(U_0)/I_\ell(U_0)$ if $n_{eff} > n_0$.

Page 147, section 5.1.2, change Tab. 3.8 for Tab. 3.9.

Page 154, table 5.5, field $\mathbf{e_t}$ of HE_{2m} (odd) should appear as: $(\hat{\mathbf{x}} \sin\phi + \hat{\mathbf{y}} \cos\phi)\Psi_1(r)$.

Page 155, eq. 5.31 and text should appear as:

We note that all other combinations between modes of different ℓ do not give LP modes. For example, the following combinations of even modes

$$\begin{aligned}
&\mathrm{HE}_{1m}+\mathrm{HE}_{2m}\Rightarrow\begin{cases}\mathbf{e}_t=\hat{\mathbf{x}}\left(\Psi_0(r)+\Psi_1(r)\cos\phi\right)-\hat{\mathbf{y}}\ \Psi_1(r)\sin\phi,\\ \mathbf{h}_t=\sqrt{\varepsilon_0/\mu_0}\,(\beta/k)\{\hat{\mathbf{x}}\ \Psi_1(r)\sin\phi+\hat{\mathbf{y}}\left(\Psi_0(r)+\Psi_1(r)\cos\phi\right)\},\end{cases}\\
&\mathrm{HE}_{1m}+\mathrm{EH}_{1m}\Rightarrow\begin{cases}\mathbf{e}_t=\hat{\mathbf{x}}\left(\Psi_0(r)+\Psi_2(r)\cos 2\phi\right)+\hat{\mathbf{y}}\ \Psi_2(r)\sin 2\phi,\\ \mathbf{h}_t=\sqrt{\varepsilon_0/\mu_0}\,(\beta/k)\{-\hat{\mathbf{x}}\ \Psi_2(r)\sin 2\phi+\hat{\mathbf{y}}\left(\Psi_0(r)+\Psi_2(r)\cos 2\phi\right)\},\end{cases}
\end{aligned}\tag{5.31}$$

Page 158, eq. 5.37 should appear as $\int_{A_\infty}\left(\tilde{\mathbf{e}}_t.\nabla_t^2\mathbf{e}_t-\mathbf{e}_t.\nabla_t^2\tilde{\mathbf{e}}_t\right)dA=\oint_{\ell_\infty}\{\tilde{\mathbf{e}}_t(\boldsymbol{\nabla}_t.\mathbf{e}_t)-\mathbf{e}_t(\boldsymbol{\nabla}_t\cdot\tilde{\mathbf{e}}_t)\}\cdot\hat{\mathbf{n}}\,d\ell,$

Page 158, eq. 5.40 should appear as $\int_{A_\infty}\boldsymbol{\nabla}_t\cdot(S\,\tilde{\mathbf{e}}_t)\,dA$ by $\oint_{\ell_\infty}S\,\tilde{\mathbf{e}}_t\cdot\hat{\mathbf{n}}\,d\ell$

Page 165, table 5.8, 1st line, all $\mathbf{n}_{\mathbf{eff}}$ and $\tilde{\mathbf{n}}_{\mathbf{eff}}$ should appear as $\boldsymbol{n}_{\mathbf{eff}}$ and $\tilde{\boldsymbol{n}}_{\mathbf{eff}}$,

the line after eq. 5.66 should read : "we assume $H(r=\rho)=1/2$".

Page 171, all ∇_t in the equations before eq. 6.5 should appear as $\boldsymbol{\nabla}_t$ (transverse gradient operator).

Page 171, all ∇_t in eq. 6.5 should appear as $\boldsymbol{\nabla}_t$ (transverse gradient operator).

Page 179, eq. 6.36 should appear as $C(\lambda)=\delta n^2\frac{k}{4}\sqrt{\frac{\varepsilon_0}{\mu_0}}\int_0^{2\pi}\int_0^{\rho}\frac{\Psi_{01}(r,\phi)\Psi_{02}(r,\phi)}{\sqrt{N_{01}N_{02}}}\,r\,dr\,d\phi.$

Page 217, $\hat{e}_{\Phi j}\hat{e}_{\Phi m}$ in eq. 7.31 should appear as $\hat{e}_{\phi j}\hat{e}_{\phi m}$.

Page 218, $\hat{e}_{\Phi j}\hat{e}_{\Phi m}$ in eq. 7.33 should appear as $\hat{e}_{\phi j}\hat{e}_{\phi m}$.

Page 246, Fig. 8.1 : $\mathrm{LP}_{\ell Nb}$ (on the left) should appear as $\mathrm{LP}_{\ell Na}$ and $\mathrm{LP}_{\ell Na}$ (on the right) should appear as $\mathrm{LP}_{\ell Nb}$.

Pages 253 and 254, eqs. 8.19, 8.20 and 8.22, all $\exp(-i\beta L)$ should appear as $\exp(i\beta L)$.

Page 254, three lines before the bottom, change "Fig 4.9" for "Fig. 4.8".

Page 259, Fig. 8.7, the two $\mathit{\Psi}_{01}(r)$ should appear as $\Psi_{01}(r)$.

Page 286, Fig. 9.16, 2nd drawing, "Supermode $\mathrm{SLP}_{01}=\mathrm{LP}_{01}(1)-\mathrm{LP}_{01}(2)$" should appear as "Supermode $\mathrm{SLP}_{11}=\mathrm{LP}_{01}(1)-\mathrm{LP}_{01}(2)$".

Page 278, Fig. 9.12, $\mathit{\Delta}z$ should appear as Δz.

Page 295, table 9.2, 1st line , $\mathrm{C}_{1,1}^{11}$ should appear as $C_{1,1}^{11}$.

Page 308, Fig. 9.37, $b_1e^{\mathrm{i}\varphi}$ should appear as $b_1e^{i\varphi}$.

Page 315, reference [15] should appear as :

[15] W.Press, B.Flannery, S.Teukolsky and W.Vetterling: Numerical Recipes in C++, *The Art of Scientific Computing*, 2d Edition ed. by Cambridge University Press, Chapter 2 pp. 87-92 (2002).

Page 321, eq. A.34, a semicolon must be before $K_\ell(x)$.

Page 322, eq. A.43, a semicolon must be before $x/K_\ell(x)$.

eq. A.44, a semicolon must be before the 2nd integral.